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(57) Abstract:

PURPOSE: To make high temperature radiation practical by employing porous silicon carbide as a carrier.

CONSTITUTION: In a case 1 one side of which is an opening and to the other wide of which is connected a supply pipe 2 for air-fuel gaseous mixture a gas-permeable carrier 3 forming a combustion surface 3a at the opening of the case 1 is fitted and provided with a baffle plate 5, the air-fuel gaseous mixture supplied through pores in the carrier 3 to the combustion surface 3a is subjected to surface combustion with the aid of a catalyst supported on the carrier 3. The carrier 3 is a sintered compact of porous silicon carbide with the pores joined in a three-dimensional network, and has a specific surface area of over $1\text{m}^2/\text{g}$ and a pore size of $10\text{W}500\mu\text{m}$. This device enables high temperature radiation to be practiced at temperatures exceeding about 900°C , a range which is beyond the capability of conventional catalytic burners so that the use of a catalytic burner, a means effective in lowering the NO_x level, will henceforth be applicable to cases requiring high temperature radiation.

